

## CLAIMS

- 1 1. A method for failover of a first device to a second device in a storage network, the  
2 method comprising steps of:  
3 detecting a failure in the first device;  
4 initializing a second virtual port on the second device;  
5 configuring the second virtual port with an identity of a first virtual port on the  
6 first device; and  
7 servicing a set of disks owned by the first device at the second device through the  
8 second virtual port.
- 1 2. The method of claim 1 wherein the step of detecting a failure comprises the step  
2 of detecting a lack of a heartbeat signal from the first device at the second device.
- 1 3. The method of claim 1 wherein the step of detecting a failure comprises the step  
2 of initiating a failover command.
- 1 4. The method of claim 1 wherein the step of configuring the second virtual port  
2 further comprises the steps of:  
3 setting a node name of the second virtual port to a node name of the first virtual  
4 port; and  
5 setting a port name of the second virtual port to a port name of the first virtual  
6 port.
- 1 5. The method of claim 4 wherein the storage network comprises a Fibre Channel  
2 (FC) network and wherein the node name comprises a FC World Wide Node Name.
- 1 6. The method of claim 4 wherein the storage network comprises a Fibre Channel  
2 (FC) network and wherein port name comprises a FC World Wide Port Name.

- 1 7. The method of claim 1 wherein the first device and second device are storage  
2 systems.
- 1 8. The method of claim 1 further comprising the step of processing, by the second  
2 device, data access requests directed to the second virtual port.
- 1 9. The method of claim 8 further comprising the step of processing, by the second  
2 device, data access requests directed to a third virtual port, the third virtual port is associ-  
3 ated with a physical port.
- 1 10. The method of claim 9 wherein the second virtual port is associated with the  
2 physical port.
- 1 11. The method of claim 1 wherein the second virtual port is associated with one or  
2 more virtual ports associated with a physical port.
- 1 12. A storage system for use in a storage system cluster, the storage system compris-  
2 ing:  
3 a physical port adapted to communicate over a network;  
4 one or more virtual ports associated with the physical port;  
5 means for adapting one of the virtual ports to assume a network identity of a port  
6 of a partner storage system in the storage system cluster;  
7 means for acquiring control of a set of storage devices associated with the partner  
8 storage system; and  
9 means for servicing data access requests directed to the assumed network identity.
- 1 13. The storage system of claim 7 wherein the means for adapting one of the virtual  
2 ports to assume a network identity of a port of a partner storage system in the network  
3 further comprises:

4 means for setting a node name associated with the one virtual port to a node name  
5 of the port of the partner storage system in the storage system cluster; and

6 means for setting a port name of the one of the virtual ports to a port name of the  
7 port of the second computer in the network.

1 14. The storage system of claim 13 wherein the node name comprises a Fibre Chan-  
2 nel World Wide Node Name.

1 15. The storage system of claim 13 wherein the port name comprises a Fibre Channel  
2 World Wide Port Name.

1 16. The storage system of claim 12 wherein the port of the second computer com-  
2 prises a physical port.

1 17. The storage system of claim 12 wherein the port of the second computer com-  
2 prises a virtual port.

1 18. A computer readable medium, including program instructions executing on a  
2 computer, the computer readable medium including instructions for performing the steps  
3 of:

4 detecting, by a first device, a failure of a second device in a cluster;  
5 initializing a first virtual port on the first device, the first virtual port being ini-  
6 tialized with a network identity of the second device; and  
7 assuming ownership, by the first device, of a set of storage devices associated  
8 with the second device.

1 19. The computer readable medium of claim 18 wherein the step of initializing the  
2 first virtual port further comprises the steps of:

3 setting a node name of the first virtual port to a node name associated with a port  
4 on the second device; and

5           setting a port name of the first virtual port to a port name associated with a port on  
6   the second device.

1   20.    A storage system for use in a storage system cluster, the storage system compris-  
2   ing:

3           a physical port adapted to communicate over a network;

4           a first virtual port associated with the physical port, the first virtual port adapted  
5   to accept data access requests directed to the storage system; and

6           a second virtual port associated with the physical port, the second virtual port  
7   adapted to assume a network identity of a failed storage system.

1   21.    The storage system of claim 20 wherein the second virtual port is further adapted  
2   to process data access requests directed to the network identity of the failed storage appli-  
3   ance.

1   22.    The storage system of claim 20 wherein the second virtual port assumes the net-  
2   work identity of the failed storage system by modifying a virtual port database entry.

1   23.    The storage system of claim 22 wherein the virtual port database entry comprises  
2   a node name field and a port name field.

1   24.    The storage system of claim 23 wherein the node name field identifies a Fibre  
2   Channel (FC) World Wide Node Name associated with the second virtual port.

1   25.    The storage system of claim 23 wherein the port name field identifies a Fibre  
2   Channel (FC) World Wide Port Name associated with the second virtual port.